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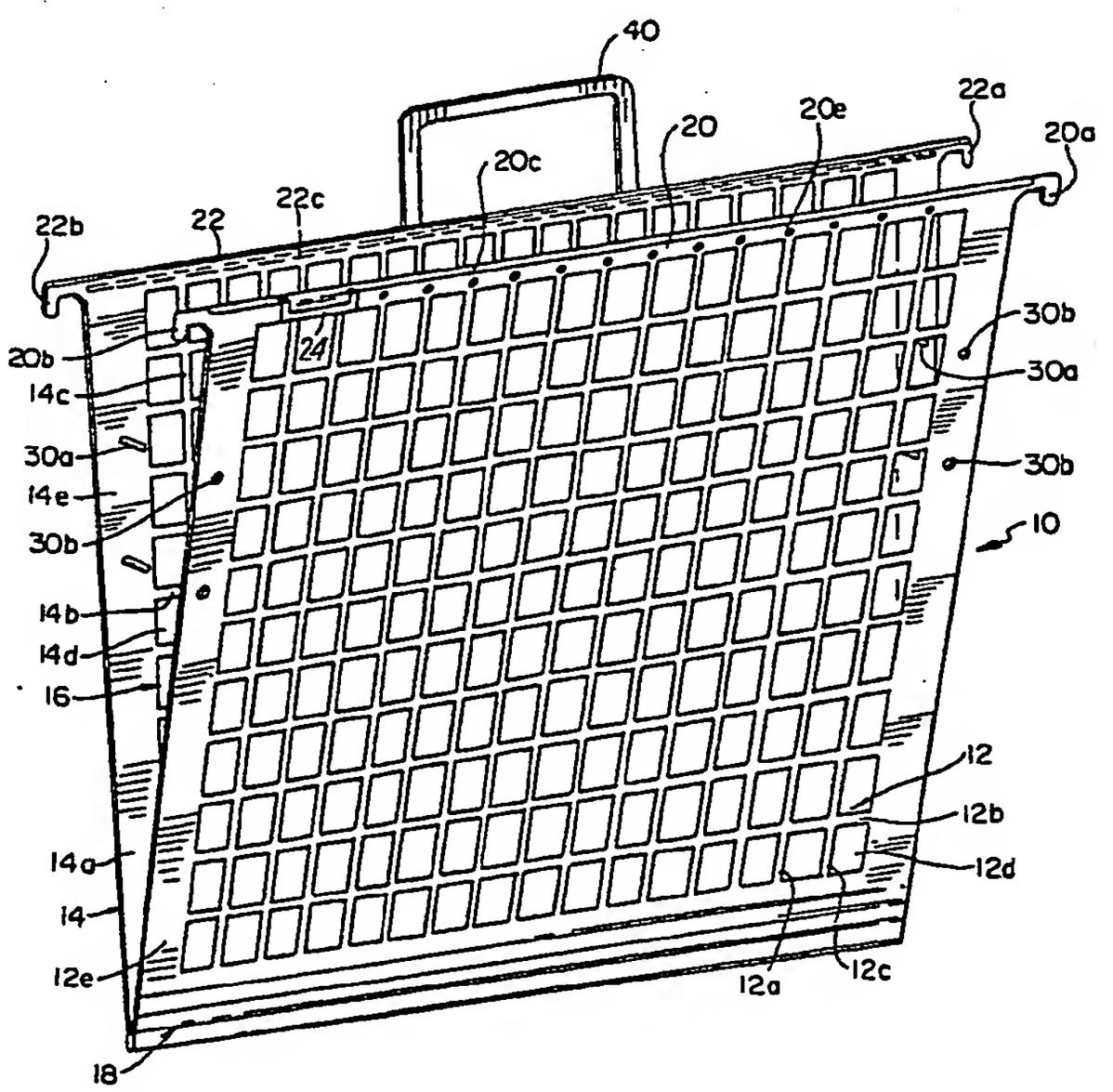
(54) Title: PLASTIC FILE FOLDER

(57) Abstract

A one-piece, injection molded, open framework plastic file folder (10) is provided to be employed as a substitute for paperboard file folders. The file folder includes two panels (12, 14) which fold about a hinge (18) and are provided with hanging hooks for suspending the file folder in a drawer or the like. Alternatively, the plastic file folder is provided with paper-receiving prongs for posting documents.



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PLASTIC FILE FOLDER

This invention relates to folders for filing papers, documents and the like, and more particularly, to a plastic file folder which is flexible, durable and economical to manufacture.

BACKGROUND OF THE INVENTION

File folders have been well known for many years and typically are made of a suitable fibrous material, such as fiberboard or paperboard. U.S. Patent No. 2,291,724 describes a filing folder having a V-shaped pocket for receiving papers and documents and is provided with hanging hooks at the free edges for hanging or suspending the file folder. Such folders have the drawback that they require separate steps to manufacture the parts and assemble them, making them more costly to manufacture than a file folder which would require no assembly and could be formed in a one-step operation. Also, because they are formed from a fibrous material, they are not longlasting and are not durable.

Broadly, it is an object of the present invention to overcome the aforesaid drawbacks. It is within the contemplation of the present invention to provide a plastic file folder which is injection molded into a one-piece, integral construction, which does not require an assembly of parts, which is economical to manufacture, and which provides a durable, long-lasting product.

It is a further object of the present invention to provide a plastic file folder with all of the tabs, paper-receiving clips and other features found on paperboard file folders so that the plastic file folders of the present

invention may be employed as substitutes therefor, yet have the advantage of one-piece construction which does not require assembly and the advantage of a longer lasting and more durable product.

SUMMARY OF THE INVENTION

In accordance with the principles of the present invention, there is provided a one-piece injection molded plastic file folder having first and second panels which define a V-shaped pocket therebetween. A transversely extending hinge is formed between the first and second panels to allow the panels to fold relative to each other. The hinge may include plural creases to allow for different size pockets.

The panels are injection molded from plastic to have an open framework, preferably in the form of an open grid. In the preferred embodiment, the grid includes horizontal and vertical ribs which form rectangular-shaped openings to reduce the weight and cost of the product. In other embodiments, the open framework or grid may be formed to have triangular-shaped openings, diamond-shaped openings, circular-shaped openings, or any equivalent arrangement which lends itself to injection molding techniques.

The panels may also be provided with label-receiving means, paper-receiving clips, carrying handles and snap means for releasably locking the panels to each other.

Advantageously, the present invention provides a file folder capable of high yield and economical production. The plastic file folder can be injection molded in one operation as a one-piece unit and thus needs no assembly operation. Further, the plastic file folder is economical enough to replace paperboard file folders and is more durable to wear and tear, and thus has a longer useful life.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects, features, and advantages of the present invention will become apparent upon the consideration of the detailed description of the presently preferred embodiments when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a perspective view of a plastic file folder in accordance with the present invention;

Fig. 2 is a partial perspective view of one corner of a panel of the plastic file folder showing an alternative construction along the border of the panel;

Fig. 2a is a cross-sectional view showing two panels of the type shown in Fig. 2 nesting together;

Fig. 3 is a cross-sectional view of the V-shaped pocket;

Fig. 4 is a cross-sectional view of a widened V-shaped pocket having a plurality of score lines;

Fig. 5 is a partial view of a panel having an alternative construction;

Fig. 6 is a cross-sectional view, in detail, of a rib shown in Fig. 1;

Fig. 7 is a partial view of a panel having an alternative construction;

Fig. 8 is an elevational view of an alternative label-receiving means;

Fig. 9 is an elevational view of an alternative label-receiving means;

Fig. 10 is a cross-sectional view of the label-receiving means shown in Fig. 9;

Fig. 11 is a partial plan view of an alternative embodiment of the present invention wherein the plastic file folder includes paper-receiving prongs;

Fig. 12 is a cross-sectional view of the paper-receiving prongs shown in Fig. 11 in a closed configuration;

Fig. 13 is a partial plan view of an alternative embodiment of the present invention wherein the plastic file folder includes paper-receiving prongs;

Fig. 14 is a partial perspective view of an alternative embodiment employing hanging hooks on the plastic file folder of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

There is shown in Fig. 1, a file folder 10 made in accordance with the principles of the present invention. It includes a first panel 12, and a second panel 14 integrally formed with panel 12 and defining a V-shaped pocket 16 between panels 12 and 14 for receiving documents and the like. Each panel is shown as having a grid-like framework 12a and 14a. Panel 12 includes horizontal ribs 12b and vertical ribs 12c which define square-shaped openings 12d. Similarly, panel 14 includes horizontal ribs 14b and vertical ribs 14c which define square-shaped openings 14d. The border or entire periphery of each panel 12 and 14 is provided with widened areas 12e and 14e of solid plastic, which surround the grid openings, and increase the rigidity of the folder 10. Preferably such borders are about one-half inch in width. To further increase rigidity, outer borders 20 and 22 are each provided with integrally formed ribs or protrusions 20c and 22c, respectively. In addition, ribs 20c and 22c may be placed at different heights on the borders so that they will nest when two or more folders are laying against each other.

In Figs. 2 and 2a, there is shown an alternative arrangement for reinforcing the outer borders of panels 12 and 14. In Fig. 2, border 20' is reinforced by molding a V-shaped cross section 20d into the border. As shown in Fig. 2a, border 22' is provided with a similar V-shaped cross section 22d.

Between the panels 12 and 14 is an integrally-formed folding hinge 18 which is formed by a crease or score 18a of reduced thickness (see Fig. 3). If desired, several scores may be formed in the hinge area 18 so that the thickness or width at the bottom of pocket 16 may be increased for additional documents. For example, as shown in Fig. 4, several scores 18b, 18c and 18d are provided for increasing the width of the pocket.

In the hinge area 18, the thickness of the plastic in each panel is preferably forty-thousandths of an inch (0.040"), but can vary from twenty to sixty-two-thousandths of an inch. The score lines 18a, 18b, 18c, and 18d have a reduced thickness in the range of two to ten-thousandths of an inch, but the preferred thickness of the score lines is four-thousandths of an inch (0.004").

As shown in Figs. 1 and 2, along the free edge of panel 12 is a border or solid hanging strip 20 having integrally formed on one end of the strip a hook 20a, and integrally formed on the other end a hook 20b. Similarly, along the free edge of panel 14 is a border or solid hanging strip 22 having integrally formed on one end of the strip a hook 22a and integrally formed on the other end of the strip a hook 22b. The hooks are for the purpose of hanging a file folder in a drawer or the like, in a manner known in the prior art.

As shown in Fig. 1, a label receiving slot 24 may be integrally formed on one or both of the hanging strips 20 and 22. The slot 24 includes three L-shaped channels for slidably receiving a suitable file label or marker.

Alternate label receiving means are shown in Figs. 8 and 9. Fig. 8 shows a rectangular frame 28 having spokes 29 for receiving tabs which are weaved through the spokes and removably held in place by them. Fig. 9 shows a rectangular frame 28' having members 29' for receiving tabs. As shown in Figs. 2, 8 and 9, frames 28 and 28' are provided with

pins 28a and 28a' for being inserted into holes 20d formed in the border 20 of panel 12. In this manner, one or more tab-receiving means may be mounted on each panel.

Releasable locking means 30 are also provided along the vertical edges of panels 12 and 14. These may be in the form of snaps integrally formed on the panels and include a snap pin 30a to be received within pin-receiving holes 30b. Such snaps can also be formed on hanging strips 20 and 22, if desired.

As shown in Fig. 1, a carrying handle 40 may be provided on each of the panels and is integrally molded with the hanging strips 20 and 22.

Preferably, polypropylene is used to injection-mold the integral or one-piece file folder 10, but other types of plastic may be used. For example, polyethylene may be used as well as other plastics suitable for injection molding where the molded product is relatively thin.

Also, as shown in Fig. 5, the grid framework may be arranged on a diagonal so that the openings 50 have the appearance of diamond-shaped openings. Alternatively, other open grid or open framework configurations may be employed. For example, as shown in Fig. 7, circular-shaped openings 52 may be employed to form the open grid. It is within the contemplation of the present invention that any configuration of an open frame or open grid may be employed.

Fig. 6 shows in detail the cross-section of a rib 60 from panel 12 or 14 having a flat surface 62 on one side and a curved surface 64 on the other side. Preferably, the flat surface 62 faces the inside of the file folder and the curved surface faces outwardly. The dimension of a rib is described as follows. The curved surface 64 is a cord of an arc formed by a radius 66 of one-sixteenth of an inch. This can be varied within a range of one-twentieth of an inch to one-eighth of an inch. The thickness of each rib at its center of maximum thickness along radius 66 may vary from thirty to sixty-two-thousandths of an inch, but preferably

is thirty-five-thousandths of an inch thick. Also, in the preferred embodiment, the ribs are spaced apart one-half of an inch, but can have a spacing of one-quarter of an inch to one inch. This provides sufficient rigidity and durability to the file folder 10, but also allows it to be sufficiently flexible.

The panels 12 and 14 of the file foldler may be letter size, or legal size, or of a size for receiving computer printout paper. For letter size folders, the weight is preferably 60 grams of plastic, but can have a range from 50 to 70 grams. For legal size folders, the weight is preferably 80 to 90 grams, but can have a range from 75 to 100 grams in weight.

Figs. 11 to 13 show the use of paper receiving prongs for use in posting documents in the file folders. Fig. 11 shows movable and foldable prongs 80 which are provided so that they bend or fold relative to the panel. The prongs 80 are provided with holes 82 for engagement with snap pins 84 formed within the panel. In this manner, each plastic prong 80, when engaged with pins 84, forms a ring for releasably receiving documents 85, as shown in Fig. 12.

An alternative arrangement is shown in Fig. 13 wherein prongs 90 and 92 are foldable relative to the panel and may be folded up to receive documents and then folded down flat against the panel as with paperboard files, to hold the documents in place.

In the embodiments shown in Figs. 11 and 13, hanging hooks 20a, 20b, 22a and 22b may be included or deleted.

In Fig. 14, an alternative embodiment is shown of a file folder used for carrying and storing computer printout paper. In this embodiment, the panels are provided with hanging hooks 100 and 102 for hanging the file folders so they may be conveniently stored.

A latitude of modification, change, and substitution is intended in the foregoing disclosure, and in some instances, some features of the invention may be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

ISDOCID: <WO___8701264A1_I_>

WHAT IS CLAIMED IS:

1. A one-piece injection-molded open framework plastic file folder, comprising:

a first panel;

a second panel integrally formed with said first panel;

at least one transversely-extending hinge integrally formed between said first and second panels so that said panels may be folded with respect to each other between a first open position in which said first and second panels are disposed side by side in the same plane and a second closed position in which said first and second panels are in contact with each other and form a V-shaped pocket;

said first and second panels being formed of plastic material in the form of an open framework;

said first panel including a first pair of integrally formed hanging hooks formed of plastic material; and

said second panel including a second pair of integrally formed hanging hooks formed of plastic material.

2. A plastic file folder in accordance with Claim 1, wherein said open framework is in the form of an open grid having rectangular-shaped openings.

3. A plastic file folder in accordance with Claim 1, wherein said open framework is in the form of an open grid having circular-shaped openings.

4. A plastic file folder in accordance with Claim 1, wherein said open framework is in the form of an open grid having diamond-shaped openings.

5. A plastic file folder in accordance with Claim 1, wherein said open framework is in the form of an open grid having triangular-shaped openings formed on each of said first and second panels.

6. A plastic file folder in accordance with Claim 1, further including releasable locking means integrally formed of plastic on said panels for releasably locking said first and second panels relative to each other.

7. A plastic file folder in accordance with Claim 1, further including label receiving means integrally formed of plastic on at least one of said first and second panels.

8. A plastic file folder in accordance with Claim 1, further including carrying handles integrally formed of plastic on said first and second panels.

9. A plastic file folder in accordance with Claim 1, further including snap means integrally formed of plastic on the edges of said first and second panels for releasably connecting said first and second panels.

10. A plastic file folder in accordance with Claim 1, further including paper-receiving prongs integrally formed of plastic on at least one of said panels for receiving and posting documents within said file folder.

11. A plastic file folder in accordance with Claim 1, wherein said first pair of hanging hooks are formed on the corners of said first panel opposite from said hinge.

12. A plastic file folder in accordance with Claim 1, wherein said second pair of hanging hooks are formed on the corners of said second panel opposite from said hinge.

13. A plastic file folder in accordance with Claim 1, wherein said hinge is formed by a crease of reduced thickness molded into said plastic material.

14. A plastic file folder in accordance with Claim 1 wherein said hinge includes a plurality of creases of reduced thickness molded into said plastic material to form a plurality of hinges to control the size of said pocket.

15. A plastic file folder in accordance with Claim 1, wherein each of said panels include a border of solid plastic surrounding said open framework to increase the rigidity of said panels.

16. A plastic file folder in accordance with Claim 1, wherein the free edge of each of said panels adjacent said hanging hooks includes means for increasing the rigidity of said panels.

17. A plastic file folder in accordance with Claim 16 wherein said means for increasing rigidity includes a protrusion integrally molded on the free edge of each of said panels.

18. A plastic file folder in accordance with Claim 17 wherein the protrusion on said first panel is at a different location than the protrusion on said second panel so that said protrusions may nest relative to each other when said panels are closed.

19. A plastic file folder in accordance with Claim 1, wherein said first and second panels are flexible and durable.

20. A plastic file folder in accordance with Claim 1, wherein said plastic material is polypropylene.

21. A plastic file folder in accordance with Claim 1, wherein each of said first and second panels is formed of a grid arrangement of plastic ribs wherein one surface of said ribs is flat and the other surface is curved in cross section.

22. A plastic file folder in accordance with Claim 21, wherein said plastic ribs have a thickness in the range of 30 to 62 thousandths of an inch.

23. A one-piece injection-molded plastic file folder, comprising:

a first panel;

a second panel integrally formed with said first panel;

at least one transversely-extending hinge integrally formed between said first and second panels so that said panels may be folded with respect to each other between a first open position in which said first and second panels are disposed side by side in the same plane and a second closed position in which said first and second panels are in contact with each other and form a V-shaped pocket;

said first and second panels being formed of plastic material in the form of an open framework; and

said first panel including integrally formed paper-receiving prongs formed of plastic material for receiving and posting documents within said file folder.

24. A plastic file folder in accordance with Claim 23, wherein said paper-receiving prongs include means for being releasably attached to said first panel to form a ring for releasably receiving said documents.

25. A one-piece injection-molded plastic file folder, comprising:

a first panel;

a second panel integrally formed with said first panel;

at least one transversely-extending hinge integrally formed between said first and second panels so that said panels may be folded with respect to each other between a first open position in which said first and second panels are disposed side by side in the same plane and a second closed position in which said first and second panels are in contact with each other and form a V-shaped pocket;

said first and second panels being formed of plastic material in the form of an open framework;

at least one of said first and second panels including means for hanging said file folders.

26. A plastic file folder in accordance with Claim 25, wherein said hanging means includes at least one hook formed on the free edge of said first panel and at least one hook formed on the free edge of said second panel.

* * *

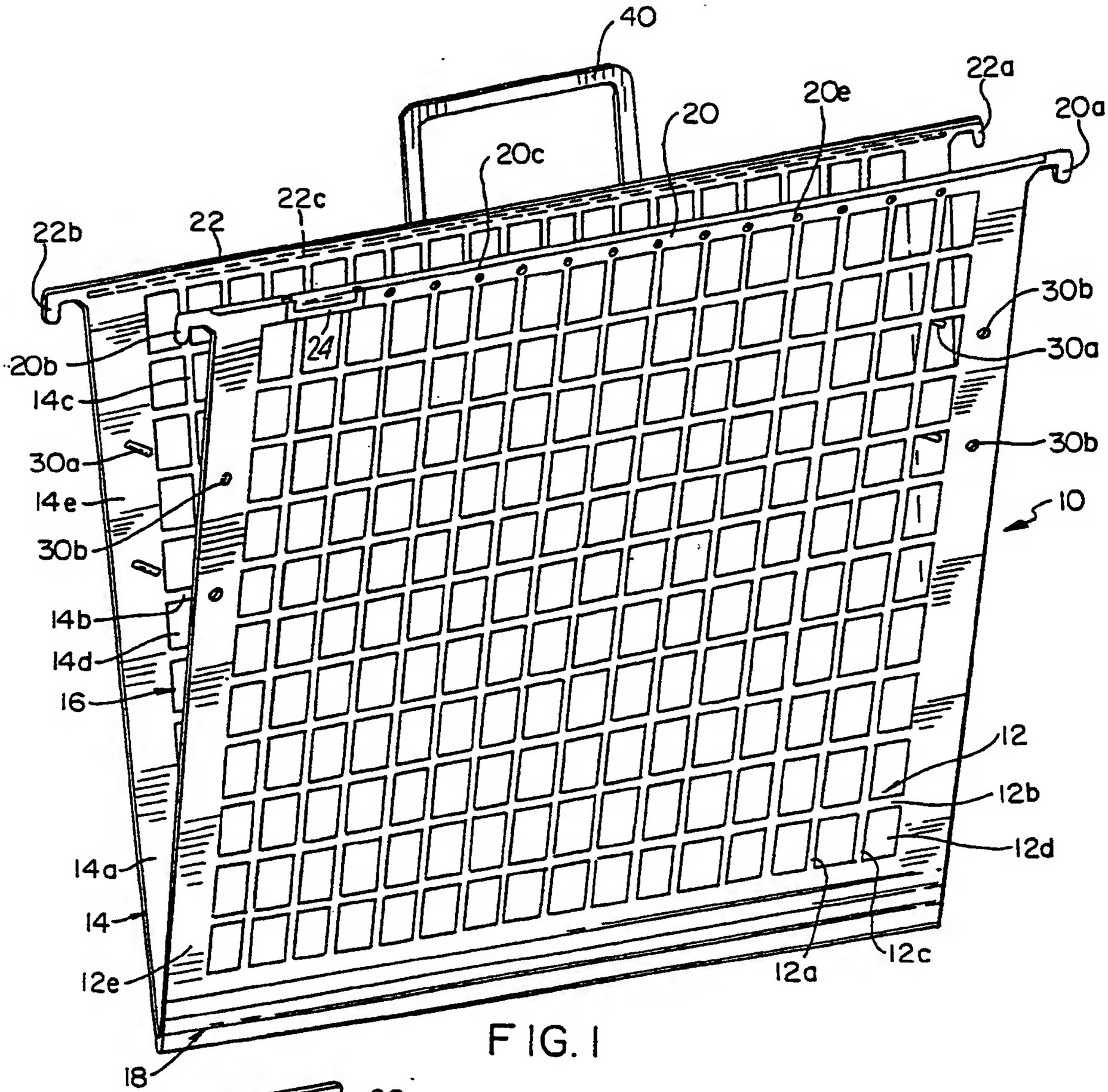

FIG. 1

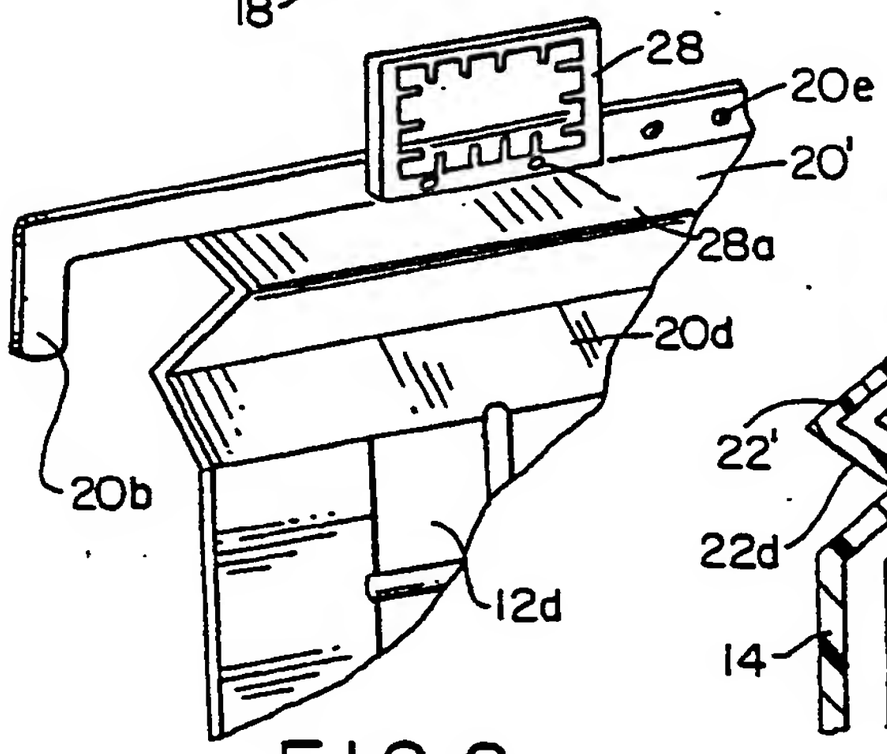

FIG. 2

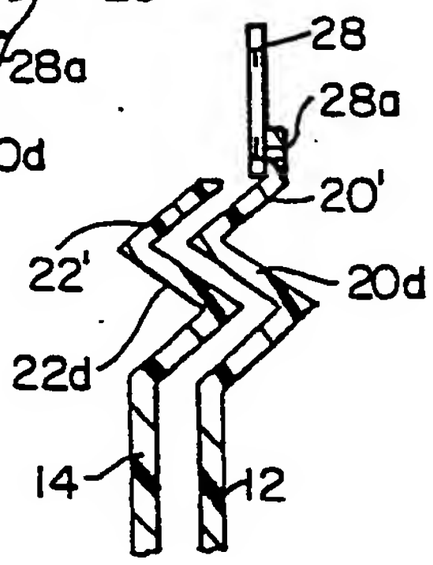

FIG. 2A

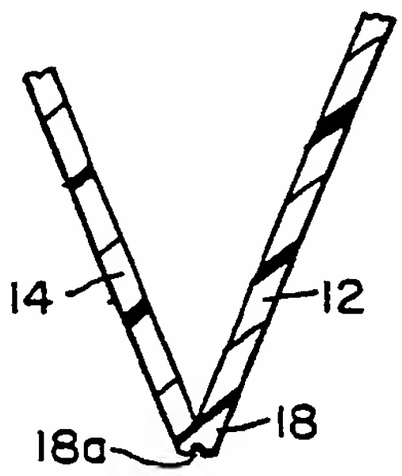

FIG. 3

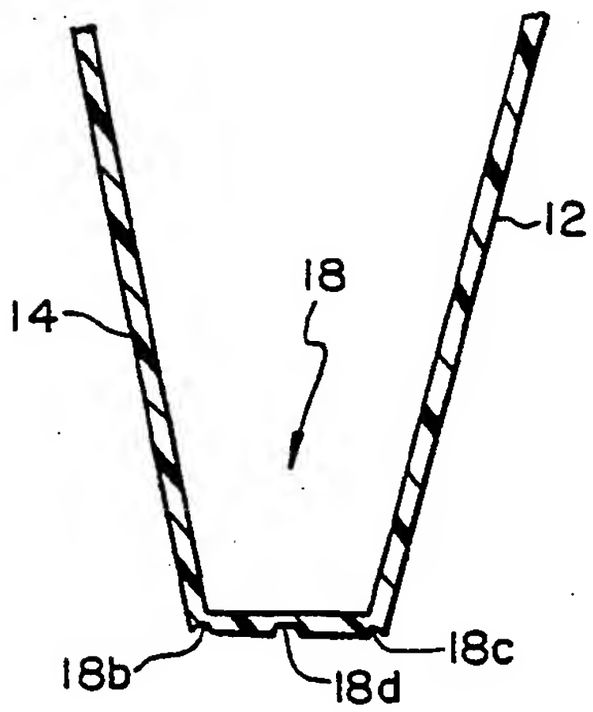

FIG. 4

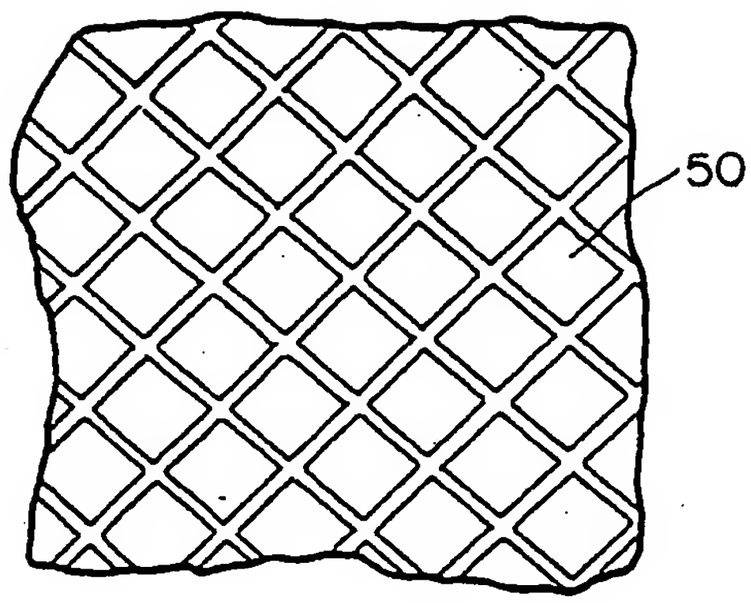

FIG. 5

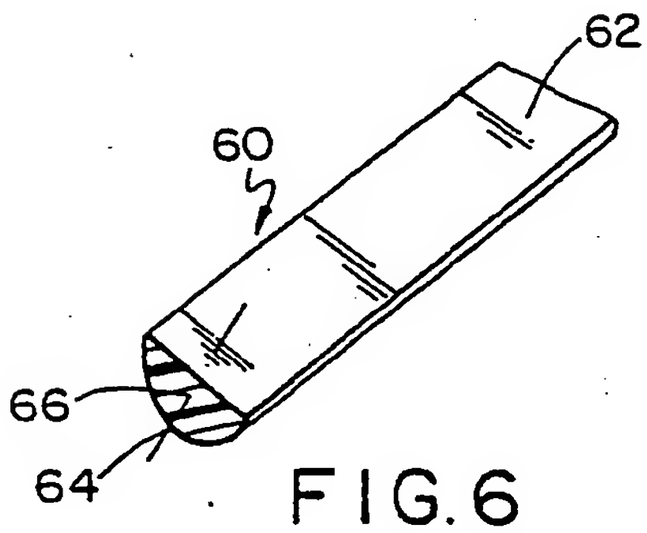

FIG. 6

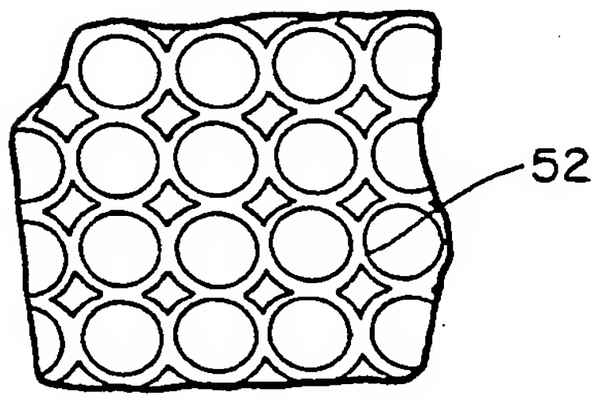

FIG. 7

FIG. 8

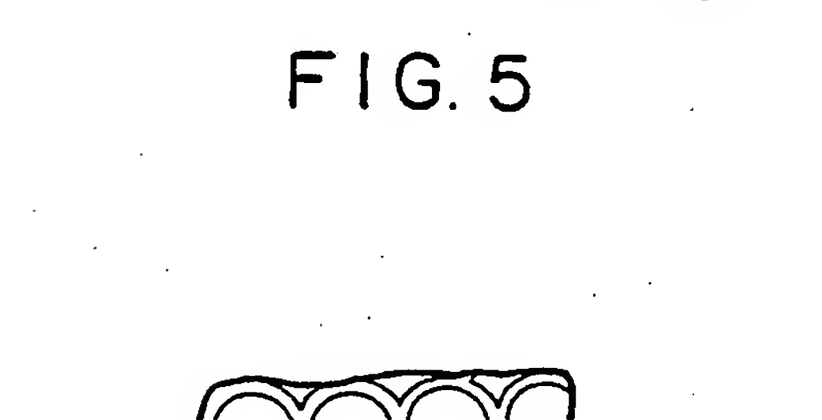

FIG. 9

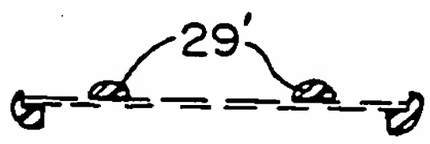

FIG. 10

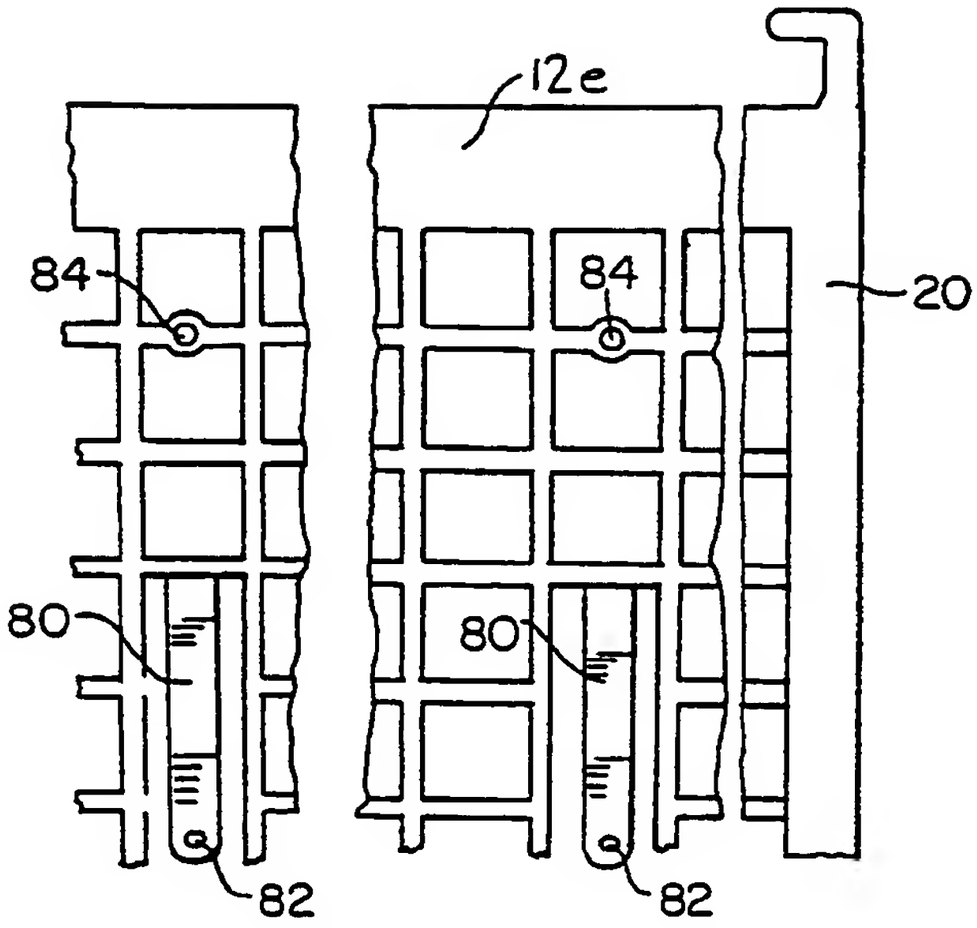

FIG. 11

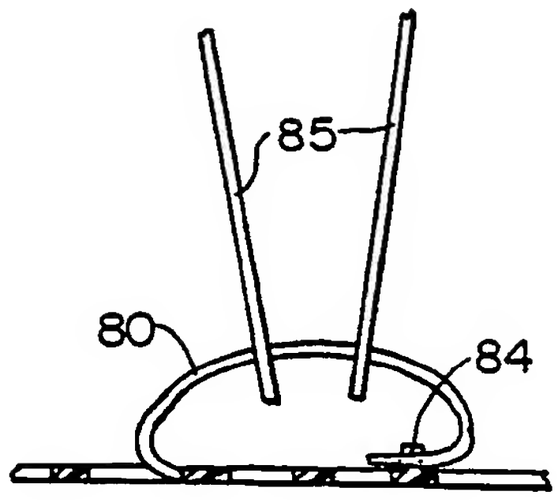

FIG. 12

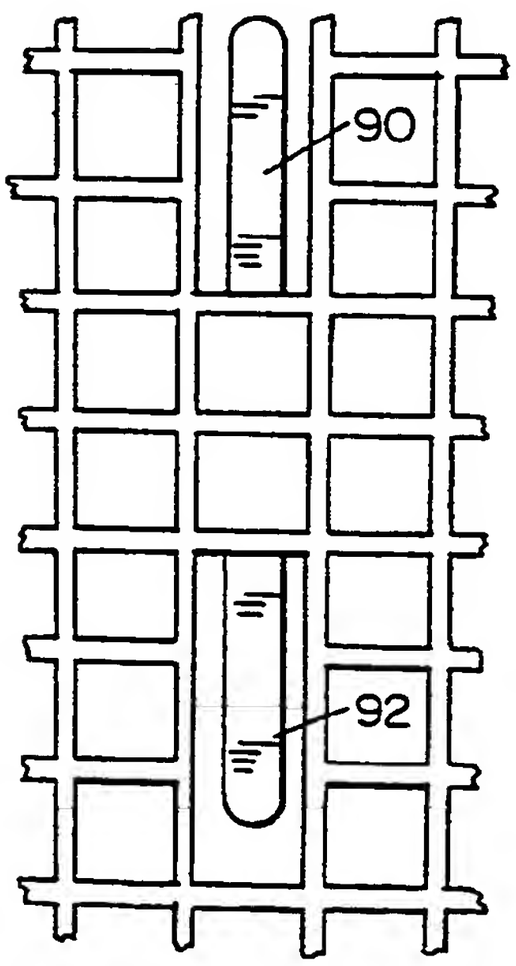

FIG. 13

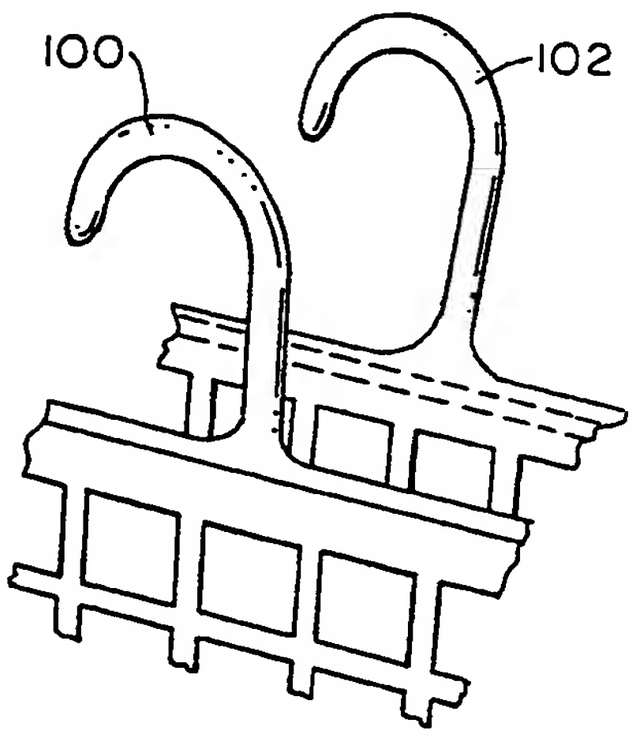

FIG. 14

INTERNATIONAL SEARCH REPORT

International Application No PCT/US 86/01658

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) 3

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC (4): A47F 7/16
U.S. Cl. 211/46

II. FIELDS SEARCHED

Minimum Documentation Searched 4

Classification System	Classification Symbols
U.S	211/46,11,184; 312/184; 229/1.5R; 402/4,15,80P; 40/360

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched 5

III. DOCUMENTS CONSIDERED TO BE RELEVANT 14

Category *	Citation of Document, 16 with indication, where appropriate, of the relevant passages 17	Relevant to Claim No. 18
Y	US, A, 1,259,659 (MYERS) 19 March 1918, see entire document.	1-26
A	US, A, 1,868,276 (DAVIS) 19 July 1932, see entire document.	1-26
A	US, A, 3,383,786 (McINTOSH) 21 May 1968, see entire document.	1-26
Y	US, A, 3,501,019 (ARMSTRONG ET AL) 17 March 1970, see entire document.	21,22
Y	US, A, 3,905,484 (DEAN ET AL) 16 September 1975, see entire document.	1-26
Y	US, A, 4,192,620 (JAHN) 11 March 1980, see entire document.	10,23,24
Y	US, A, 4,400,107 (PITTS) 23 August 1983, see entire document.	10,23,24
Y	US, A, 4,576,328 (SNIDER ET AL) 18 March 1986, see entire document.	10,23,24
A	FR, A, 744,391 (VOGEL) 19 April 1933, see entire document.	1-26
A	CA, A, 490,725 (KOLBL) 24 February 1953, see entire document.	1-26
A	GB, A, 694,886 (WHITSON) 29 July 1953, see entire document.	1-26
A	GB, A, 872,635 (DUCERF) 12 July 1961, see entire document.	1-26

* Special categories of cited documents: 15

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search 2

28 October 1986

Date of Mailing of this International Search Report 2

19 NOV 1986

International Searching Authority 1

ISA/US

Signature of Authorized Officer 20

Blair M. Johnson

Form PCT/ISA/210 (second sheet) (May 1986)

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

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A	FR, A, 1,463,195 (BRUNET ET AL) 14 November 1966, see entire document.	1-26
Y	CH, A, 421,899 (LENNARTZ) 15 April 1967	13,14

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE [10]

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers . . because they relate to subject matter [12] not required to be searched by this Authority, namely:

2. ☐ Claim numbers . . , because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out [13], specifically:

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING [11]

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.